REMARKS

The Office Action

Claims 16, 17, 21-28, 31-37 and 38 are rejected under 35 USC 103(a) as allegedly unpatentable over Kunita (US 2001/0009129) in view of Kinsho (US 5,837,785) and Ding (US 5,994,430) and further in view of alleged AAPA; and claims 29-30 are rejected under 35 USC 103(a), as allegedly unpatentable over Kunita, Kinsho, Ding, and the alleged AAPA, and further in view of Umeda (JP 05-127402 A).

Discussion of Rejections

The Office Action states that Kunita discloses a polymer comprising a phenolic monomeric unit (referring to paragraphs 0190-0191) and further that Kunita fails to specifically disclose that the polymer comprises a phenolic monomeric unit wherein the phenyl group of the phenolic monomeric unit is substituted by the specified group and that wherein S is covalently bound to a carbon atom of the phenyl group. The Office Action further states that Kunita teaches that the heterocyclic group is attached either to the main chain or the side chain of the main polymer by an appropriate linking chain, including S and thioethers (referring to paragraph 0197). The Office Action further states that Kunita teaches using novolac resins as the main polymers, and using them "in any or all" of the embodiments. The Office Action concludes, albeit erroneously, that, at the time of the invention, it would have been obvious to one having ordinary skill in the art to use novolac resins as the backbone chain, in order to enhance the film strength. The Office Action further states that Kinsho teaches the desirability of incorporating heterocyclic molecules into novolacs. The Office Action concludes, again erroneously, that it would have been obvious to one of ordinary skill in the art the time of the invention to use novolac polymers as the base of the heterocyclic polymer of Kunita in order to improve the storage stability.

Applicants respectfully disagree with the above conclusions. Kunita provides a detailed description of the types of binder polymers starting at paragraph 0182:

> [0182] Examples of the binder polymers usable in the acid cross-linking layer of the present invention include polymers having at side chains or main chains thereof aromatic hydrocarbon rings to which a hydroxyl group or an alkoxy groups is directly attached. An alkoxy group having a carbon number of 20 or less is preferable from the standpoint of sensitivity. Preferable examples of the

> aromatic hydrocarbon ring include a benzene ring, a naphthalene ring and an anthracene ring, from the standpoint of availability of raw materials. While these aromatic hydrocarbon rings may have substituents other than a hydroxyl or alkoxy group (e.g., a substituent such as a halogen group or a cyano group), it is preferable that the aromatic hydrocarbon ring does not have substituents other than the hydroxyl and alkoxy groups from the standpoint of sensitivity. Kunita teaches binder polymers that can be used "favorably" in paragraph 0183:
>
> [0183] Binder polymers that can be favorably used in the present invention are polymers having structural units represented by the following general formula (III), or phenol resins such as Novolac resin.

The binder polymer described in paragraph 0182 is further illustrated in paragraphs 0183 to 0192. In other words, binder polymers having a hydroxyl group or an alkoxy group on the hydrocarbon rings are described in paragraphs 0181-0192. Among these polymers, Kunita teaches, at paragraph 0182, that "the binder polymers of the present invention include polymers having at side chains or main chains thereof aromatic hydrocarbon rings to which a hydroxyl group or an alkoxy group is directly attached" and that "these aromatic hydrocarbon rings may have substituents other than a hydroxyl or alkoxy group (e.g. a substituent such as a halogen group or a cyano group), it is *preferable that the aromatic hydrocarbon ring does not have substituents other than the hydroxyl and alkoxy groups from the stand point of sensitivity*" (Emphasis added).

It is known (common general knowledge) that polyvinyl phenol and novolac resins belong to this class of polymers, having an aromatic hydrocarbon ring attached by a hydroxyl group or alkoxy group. Kunita clearly teaches that these polymers are preferably *not* substituted by other groups than hydroxyl and alkoxy groups from the standpoint of sensitivity. The skilled person would, therefore, not contemplate to attach heterocyclic groups on these polymers because Kunita taught that this will destroy the sensitivity of the system. Accordingly, the Office Action's contention that a person of ordinary skill in the art would substitute the hydrocarbon ring with a heterocyclic group is contrary to the teachings of the cited reference. Accordingly, the obviousness rejections are erroneous and must fall.

Further, in paragraphs 0193- 0197, Kunita describes a different embodiment of the binder polymer, namely, a polymer having heterocyclic group that has unsaturated bonds in the ring. In paragraph 0197, Kunita provides examples of such polymer chains: "While examples of polymer main chains include a vinyl polymer as a side chain of

poly(meth)acrylate, polystyrene and polyvinyl acetal, polyester and polyurethane, a polyvinyl polymer is preferable in terms of availability and economical efficiency." It is clear that Kunita is contemplating polymers such as poly(meth)acrylate, polystyrene, and polyvinyl acetal in this embodiment of binder polymers as suitable for attaching a heterocyclic group. Clearly, there is no teaching that a polyvinyl phenol polymer can be modified to include a heterocyclic group. Such a teaching, if present, would run afoul of Kunita's earlier teaching in paragraph 0182 that it is "*preferable that the aromatic hydrocarbon ring does not have substituents other than the hydroxyl and alkoxy groups from the stand point of sensitivity.*" The foregoing clearly shows that the combination that the Office Action is making, based on its assertion that Kunita teaches using novolac resins as the main polymers and using them in any or all of the embodiments," is erroneous.

It is well established law that motivation to modify the prior art (as the Office Action has argued here) would be lacking where the proposed modification would destroy the intended function of the cited reference. See, e.g., *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir. 1992), note 23 at 1783 ("A proposed modification is inappropriate for an obviousness inquiry when the modification renders the prior art reference inoperable for its intended purpose"). See also, *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), where the prior art strainer had an orientation that relied, in part, on gravity to separate dirt and water from gasoline, and no motivation would have existed to turn this strainer upside down. Indeed, "if the prior art apparatus were turned upside down, it would be rendered inoperable for its intended purpose". *Id.* at 1127. The Court continued that the gasoline would be trapped inside the apparatus, while water would flow out of the outlet and the dirt would become clogged, requiring another pet-cock at the new bottom of the device. Holding that the prior art, in effect, taught away from the Board of Appeals and Interference's proposed modification, the Federal Circuit reversed the obviousness rejection.

The above established law is applicable here with full force. Those of ordinary skill in the art would not want to lose sensitivity even if there is any alleged advantage of film strength or tolerance to repeated printings due to the heterocyclic groups. The proposed combination of the two different embodiments is clearly forbidden. Such a combination would destroy the intended purpose of the first embodiment since the sensitivity would be sacrificed.

In regards to Kinsho, applicants respectfully submit that there is no motivation to combine Kunita with Kinsho. Even if Kinsho teaches that novolacs can be substituted with heterocyclics, there is no motivation to combine Kinsho with Kunita to arrive at the claimed invention because, Kunita expressly teaches that *that the aromatic hydrocarbon ring does not have substituents other than the hydroxyl and alkoxy groups from the stand point of sensitivity.*

The teachings of Kinsho conflict with those of Kunita. Accordingly, the suggestive power of the combined references has been nullified.

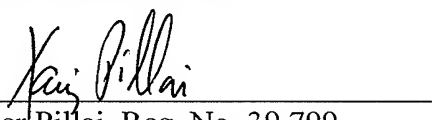
Applicants further respectfully submit that Kunita teaches away from the combination that the Office Action has proposed. Furthermore, there is also no reason to combine Kunita with the teaching in Ding, wherein a poly(vinylphenol) can be substituted on a carbon atom of the phenyl group, because there is no hint in Kunita to do so; on the contrary, Kunita teaches away from such a combination. The alleged AAPA and Umeda do not add anything to make a *prima facie* case for obviousness.

In view of all of the foregoing, as well as for the reasons set forth in the Reply filed on October 26, 2007, the obviousness rejections are erroneous and should be withdrawn.

Conclusion

A favorable decision is solicited. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

Respectfully submitted,



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